I CLAIM:

Claim 1. An improved jar tool for retrieving stuck objects from a wellbore, comprising:

opposed upper and lower main housings having confronting spaced ends coupled together by a lost motion coupling connected therebetween for limited movement of the main housings toward and away from one another along a common axis; and opposed ends opposed to one another and to said lost motion coupling; attachment means at each opposed end of the upper and the lower main housing for supporting and running the jar tool into and out of a wellbore and for attaching an apparatus including downhole tools to the lower end of said lower housing;

a main shaft having opposed ends; said main shaft being reciprocatingly received within said upper main housing; said upper main housing having spaced axially aligned multiple annular stored energy chambers formed respective said main shaft and said main housing within which spaced biasing means, including springs having different spring characteristics, are supported concentrically respective said main shaft and said upper main housing;

compression transfer members extending from said main shaft into a position for engaging and compressing said spaced biasing means to thereby store energy therewithin responsive to relative movement of said main shaft respective said upper main housing and for accelerating said upper main chamber respective said lower main chamber upon demand;

releasable latch means interconnecting one said opposed end of the main shaft respective one end of the lost motion coupling apparatus for releasing said main shaft respective said lost motion coupling after storing energy within said biasing means for accelerating the main upper housing away from the lower main housing;

a hammer and an anvil, respectively, connected to said upper main housing and said main shaft, respectively; thereby providing the recited acceleration of the main housing;

and a slidable sleeve concentrically arranged respective said releasable latch means and engaging one biasing means of one stored energy chamber for resisting axial movement of said releasable latch means while said releasable latch means is reciprocated within adjacent chambers having different diameters, the smaller diameter chamber interfers with unlatching while the larger diameter chamber permits unlatching.

Claim 2. The improvement of Claim 1 wherein the lower end of said upper housing terminates in a sub forming a closure means therefor and includes an internal shoulder forming a hammer within said upper main housing, said lost motion coupling extends through said closure means into releasable attachment respective said latch means; an anvil formed on said lost motion coupling between said releasable latch and said closure means whereby reciprocating the main upper housing respective the main lower housing brings said hammer into abutting engagement respective said anvil.

Claim 3. The improvement of Claim 1, wherein said latch means is positioned for axial movement within the lower end of said upper main housing and is responsive to movement of said upper main housing respective said lower main housing; said lost motion coupling means has one end thereof affixed to the upper end of said main lower housing with the other end thereof extending through said jar into the interior of said main housing and into fixed relationship respective the lower end of said releasable coupling; and is positioned for movement responsive said main shaft and said

main upper main housing into spaced adjacent chambers of different diameter bores forming a shoulder therebetween.

Claim 4. The improvement of Claim 1 wherein said jar tool is run into a borehole supported by a wireline, said releasable latch means interconnects said lower opposed end of the main shaft respective one end of the lost motion coupling apparatus for releasing the lower end of said main shaft from said upper end of said lost motion coupling upon increase in the wireline tension;

one said end of said biasing means urges said biasing means against said latch means while the sleeve slidably receives the female latch thereabout and prevents said latch means unlatching;

a hammer formed on an inner face of the closure member and an anvil connected to said main shaft for engaging said hammer when said latch means is unlatched.

Claim 5. The jar tool of Claim 1 wherein there is an axial passageway formed through said main shaft; a protected electrical conductor within the passageway having opposed ends,

one said end being adapted to be connected to a conductor extending uphole to the surface, the other said end extending through the main shaft, through the releasable coupling, hammer and lost motion coupling, and into main chamber where the conductor is provided with sufficient length to provide for the take up required by the length of the stroke occasioned by reciprocation of the main upper housing respective the lower main housing, the other end of said conductor adapted to be connected to an apparatus supported respective said lower chamber to thereby enable electronic data to be transmitted from the lower end of the jar tool axially through the jar tool, and along the wireline to the surface.

Claim 6. An improved jar tool for use in wellbores and for retrieving stuck objects from a wellbore, comprising:

upper and lower main housings having confronting ends coupled together by a lost motion coupling therebetween for limited movement toward and away from one another along a common axis; and opposed ends opposed to one another and to said lost motion coupling; attachment means connected at each opposed end of the upper and the lower main housing for supporting and running the tool into and out of a wellbore and for attaching an apparatus including a tool to the lower end of said lower housing;

a main shaft having opposed ends reciprocatingly received within said upper main housing; said upper main housing having a plurality of annular stored energy chambers formed therein between said main shaft and said main housing; spaced biassing means, including springs having different spring characteristics, are supported concentrically respective said main shaft;

said main shaft having an outwardly extending member thereon connected to engage said spaced biasing means for storing energy therein in response to relative movement of said upper main housing respective said lower main housing;

releasable latch means interconnecting one said opposed end of the main shaft respective one end of the lost motion coupling apparatus for releasing energy stored within said biasing means; a sleeve axially aligned with said main shaft and slidably mounted for movement respective thereto; a hammer having opposed ends and forming a closure for said lower end of said main chamber; an anvil affixed to said main shaft confronting said hammer; said lost motion coupling connected to the upper and lower main housings to be moved along a common axis toward and away from one another, and extends from said main shaft, and includes opposed ends;

one said opposed end terminates within said main chamber while the other end is affixed to said lost motion coupling; an anvil positioned to move said main shaft when said hammer impacts thereagainst.

Claim 7. The jar tool set forth in Claim 6, wherein the lower end of said upper housing terminates in a sub forming a closure means therefor and includes an internal shoulder forming a hammer within said upper main chamber; said lost motion coupling extends through said closure means into attachment respective the latch means, an anvil formed on said lost motion coupling between said latch and said sub and positioned to be contacted by said hammer upon release of the stored energy.

Claim 8. The jar tool of Claim 6 and further including a closure member formed at the lower end of said upper main housing having a hammer formed thereon and positioned to abuttingly engage an anvil positioned to accelerate said main shaft that is connected to said lost motion coupling; whereby

when the jar tool is in the latched configuration and wireline tension increased, the latch means separates, releasing the main housing, whereupon the upper main housing accelerates axially away from said lower main housing, and is arrested by said hammer abuttingly engaging said anvil, thereby providing a jar action for a tool string.

Claim 9. The jar tool of Claim 6 wherein there is an axial passageway formed through said main shaft, through said latch means, anvil, lost motion coupling and into said lower chamber;

an electrical conductor within the passageway having opposed ends, one end adapted to be connected to a conductor

extending uphole to the surface, the other end extending through the axial passageway into said lower main chamber where the conductor is made into a serpentine configuration and thereafter connected to an apparatus supported by the lower chamber; whereby, the conductor is provided with surplus length to provide for the length of the stroke occasioned by reciprocation of the main upper housing respective the main lower housing, the other end of said conductor adapted to be connected to an apparatus supported respective said lower chamber.

Claim 10. The jar tool of Claim 6 wherein there is an axial passageway formed through said main shaft, through said latch means, anvil, lost motion coupling, into said lower chamber; a tubular protective housing slidably received within the passageway of the main shaft;

said electrical conductor is supported within the tubular housing and having opposed ends, one end adapted to be connected to a conductor extending uphole to the surface, the other end extending through the axial passageway into said lower main chamber where the conductor is made into a serpentine configuration and thereafter connected to an apparatus supported by the lower chamber.

releasable coupling, hammer, lost motion coupling and into said lost motion where the conductor is provided with surplus length to provide for the length of the stroke occasioned by reciprocation of the main upper housing respective the main lower housing, the other end of said conductor adapted to be connected to an apparatus supported respective said lower chamber.

Claim 11. The apparatus of Claim 6, wherein said main lower housing has spaced chambers formed therein;

a piston slidably received within the main lower chamber adjacent the lower end thereof;

said piston dividing the chamber into first and second chambers, said protective tubing extends through said first chamber, said piston; and into said second chamber where the conductor emerges from the tubing and is provided with a greater length than the length of the stroke of the lost motion coupling.

Claim 12. Method for electronically communicating between a downhole apparatus attached respective a tool string with- in a wellbore and includes a jar tool, wherein the jar tool is useful for retrieving stuck objects from a wellbore and includes opposed upper and lower main housings having confronting ends coupled together by a lost motion coupling having one end affixed to the lower housing and the other end extending into the upper housing and connected to a shaft having a releasable latch apparatus interposed therebetween for limited movement toward and away from one another along a common axis; and, opposed ends opposed to one another and to said lost motion coupling, with there being attachment means connected at each opposed end of the upper and the lower main housings for supporting and running the tool into and out of a borehole and for attaching an apparatus, including a tool, to the lower end thereof; comprising the steps of:

step 1. forming axially aligned spaced multiple annular stored energy chambers within said upper main housing;

step 2. arranging biasing means within each stored energy annular chambers concentrically respective said main shaft, and selecting biasing means having different spring constants;

step 3. arranging multiple annular stored energy annular chambers within the annulus formed between said main shaft and said

main housing within which spaced biasing means, including springs, are housed concentrically respective said main shaft;

step 4. connecting said main shaft to store energy within said biasing means responsive to relative movement between said upper and lower chambers;

step 5. configuring the main shaft to engage the free end of the biasing means to compress the biasing means and thereby store energy therein in response to downward movement of said housing; an axial passageway formed through said main shaft; reciprocatingly received within said upper main housing coaxially responsive thereto; releasable latch means interconnecting one said opposed end of the main shaft respective one end of the lost motion coupling apparatus;

step 6. placing a hammer on a closure member for closing the lower end of said upper main chamber and extending the hammer into said upper main chamber concurrently with applying the closure member to the lower end of the upper chamber;

step 7. mounting an anvil respective said main shaft for decelerating the main housing n response to release of energy from said biasing means;

step 8. forming an axial passageway through said shaft and extending the passageway through said latch means, anvil, lost motion coupling, and into said lower chamber; connecting the opposed ends of the conductor to the wire line and to apparatus attached to the lower chamber;